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# Thesis Proposal

**Thesis title:**

A DRIVER RECOMMENDER SYSTEM

**Thesis advisor:** DR. Le Mai Tung – ThS. Le Ngoc Thanh

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**Type of thesis:** *Research with demo application*

**Duration:** From January 2016 to August 2016

**Contents of thesis:**

**Introduction**

In recent years, information has been the most valuable element in almost all human activities. Along with the continuous development of internet, the amount of readily available information has increased exponentially. Recommender systems have become important tools helping users to deal with information overload and the abundance of choice. Many successful e-commerce applications likes amazon.com, Netflix, Levi’s, eBay … are already using recommender systems to help their customers. In addition, the growth of a new form of transportation service likes Grab taxi, Grab bike …etc. requires a taxi driver recommender system for users. In this thesis, we propose a recommender system that provides users a list of recommended taxi drivers.

**Motivation**

Recommender systems has become an essential part of business for many E-commerce sites. These systems help customers find products they want to buy from a business. Conversely, they help the business by generating more sales.

With transportation service likes Grab taxi, Grab bike …, users have more choices when booking a ride. Users can know how many taxi around them and know the drivers. Users can choose the driver that they want to go with.

In this case, a recommender system learns from users and recommends drivers that they will find most valuable from among the available drivers.

**Goal**

In this thesis we propose a real-time driver recommender system. There are two goals we need to achieve. The first is to generate meaningful recommendations to a collection of users for drivers that might interest them. The second is handle large-scale problems while maintaining the accuracy and near real-time response of smaller scale systems.

**Project details**

*The project has two parts: Research and Application*

The Research part consists of methods for predicting suitable drivers for user based on user’s ratings, driver’s distance from user and demographic information.

For testing and experimenting with various algorithms and methods we will use R and R Studio since it’s easy to use and free. As for the dataset, because there is no dataset about driver-user available on the internet, we have to use dataset from a similar case: Dating recommender system.

The Application part is a RESTful server side which able to generate a TOP-N list of the most suitable drivers for the given user’s id.

**Tools**

The server will be made from Java code and will use the results from the research part as the core. The server will receive requests from various devices such as smartphones or web browser which contain a single user’s id then response with a list of recommended drivers.

**Challenges**

The accuracy of the current methods for people-to-people recommendation is not high. In order to archive high accuracy, we have to combine various methods into one system which need a lot of experiments and research.

On the application side, we also have to face the problem of scaling. When the number of users and drivers increase the system maybe overhead and stop functioning.

**Research timelines:**

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| Task | Date |
| Study background in recommender system | 1/2015 – 2/2015 |
| Investigate algorithms in people-to-people recommender system | 3/2015 – 4/2015 |
| Design and develop a recommender engine for passengers and drivers | 5/2016 – 6/2016 |
| Improve source code. Test application. | 6/2016 – 7/2016 |
| Finalize the thesis document | 7/2016 – 8/2016 |

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| **Approved by the advisor** | **Ho Chi Minh city, 22/01/2016** |
| ***Signature of advisor*** | ***Signature(s) of student(s)*** |